Fan Controller with Remote Temperature Sensor

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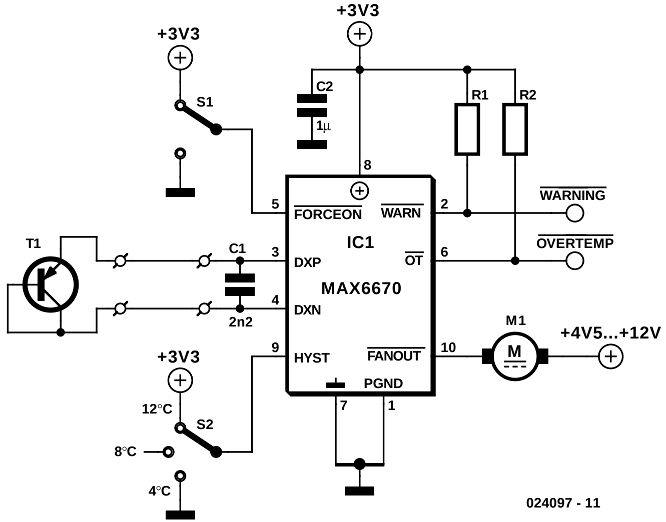

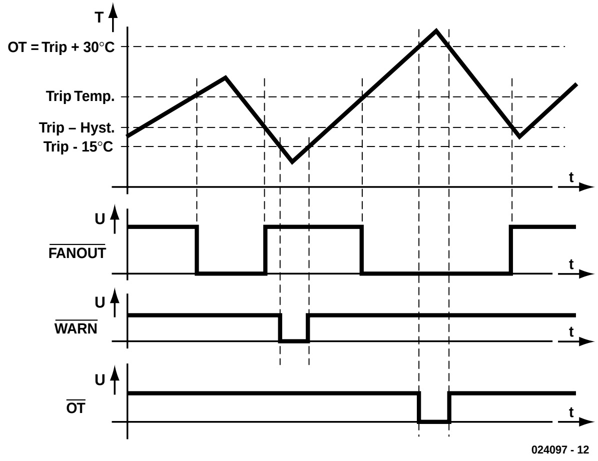

The Maxim MAX6670 (http://pdfserv.maxim-ic.com/arpdf/MAX6668-MAX6670.pdf) is an integrated circuit for temperature-dependent fan control. The p-n junction of a transistor is used as a temperature sensor, which can be mounted remotely. The various versions of the IC are programmed by the manufacturer with a range of trip temperatures from +40 °C to +75 °C. The devices are available in 5 °C steps. Hysteresis is programmed via the HYST input at 12 °C (HYST tied to +3.3 V), 8 °C (HYST left open-circuit), or 4 °C (HYST tied to ground). For example, if the hysteresis is set to 8 °C, the fan will turn off when the temperature falls below the trip temperature minus 8 °C. It will only turn on again when the temperature again reaches the trip value. Fans operating on voltages from +4.5 V to +12 V, drawing currents of up to 250 mA can be used. A test facility is provided via the FORCEON connection: tying this input to ground turns the fan on immediately.

The MAX6670 indicates under- and over-temperature conditions via two further outputs. The $\overline{\text{WARNING}}$ output goes low when the temperature is more than 15 °C below the trip value; $\overline{\text{OVER TEMP}}$, on the other hand, goes low when the temperature at the sensor T is more than 30 °C above the trip temperature.

The p-n junctions found in microprocessors make suitable sensors, as do small-signal transistors such as the BC307, BC546, BC557 and 2N3904.

The device is also available without the $\overline{\text{WARNING}}$- and $\overline{\text{OT}}$ outputs as the MAX6668. This has a fixed hysteresis of 8 °C and can also be obtained in 5 °C steps from +40 °C to +75 °C. The ICs are available in 10 pin (MAX6670) or 8 pin (MAX6668) µMAX packages.

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